

Question #47776, Chemistry, Inorganic Chemistry

the temperature of a sample of water in the liquid phase is changed from 15 degree Celsius to 25 degree Celsius by the addition of 500 calories. what is the mass of the water?

Answer:

$$Q=500 \text{ cal}$$

$$1 \text{ cal} = 4.18 \text{ J}$$

$$C_{\text{water}}=4.18 \text{ kJ}/(\text{kg}\cdot\text{K})$$

$$T_1=15 \text{ }^\circ\text{C}$$

$$T_2=25 \text{ }^\circ\text{C}$$

m-?

$$Q=c \times m \times \Delta T$$

$$m = \frac{Q}{c \times \Delta T}$$

$$m=500 \times 4.182 / (4180 \times (25-15))=0.05 \text{ kg}$$